

Claims:

1. (Canceled)
2. (Canceled)
3. (Canceled)
4. (Canceled)
5. (Canceled)
6. (Canceled)
7. (Canceled)
8. (Canceled)
9. (Canceled)
10. (Currently Amended) A sensing element for use with a controller adapted to receive input signals corresponding to the sensing element, said sensing element comprising:

a housing defining a conduit adapted to be in fluid communication with a fluid;

a pair of sensing arrays disposed within said conduit, said pair of sensing arrays being in a facing spaced relationship to define a gap disposed therebetween;

a plurality of sensors disposed on said pair of sensing arrays, said plurality of sensors being adapted to sense and provide signals corresponding to a plurality of parameters of said fluid. ~~The sensing element as in claim 1,~~ wherein the plurality of parameters include temperature, pressure differential exerted on a sensing array of the pair of sensor sensing arrays, and force exerted on the sensing sensor array; and

a microprocessor adapted to receive the signals of said plurality of sensors, said microprocessor being adapted to determine at least one condition of said fluid upon receipt of the signals corresponding to the plurality of parameters of said fluid.

11. (Currently Amended) The sensing element as in claim 10, wherein the pair of sensing arrays are wing shaped.

12. (Currently Amended) The sensing element as in claim 11, wherein at least one of the sensors of said plurality of sensors is disposed on the leading edge of one of the sensing arrays.

13. (Currently Amended) The sensing element as in claim ~~11, 14~~; wherein the pair of sensing arrays are stainless steel.

14. (Currently Amended) The sensing element as in claim 10, wherein ~~the a~~ pressure differential signal is used by the microprocessor to determine the flow rate of said fluid flowing through said housing.

15. (Currently Amended) The sensing element as in claim 14, wherein the pressure differential signal of one sensing array of said pair of sensing arrays is used by the microprocessor to determine the flow rate of said fluid flowing through said housing and the pressure differential signal of the other sensing array of said pair of sensing arrays is used by the microprocessor to check the flow rate determined by the microprocessor.

16. (Canceled)

17. (Canceled)

18. (Currently Amended) ~~The sensing element as in claim 1,~~ A sensing element for use with a controller adapted to receive input signals corresponding to the sensing element, said sensing element comprising:

a housing defining a conduit adapted to be in fluid communication with a fluid;

a pair of sensing arrays disposed within said conduit, said pair of sensing arrays being in a facing spaced relationship to define a gap disposed therebetween;

a plurality of sensors disposed on said pair of sensing arrays, said plurality of sensors being adapted to sense and provide signals corresponding to a plurality of parameters of said fluid; and

a microprocessor adapted to receive the signals of said plurality of sensors, said microprocessor being adapted to determine at least one condition of said fluid upon receipt of the signals corresponding to the plurality of parameters of said fluid;

wherein the pair of sensing arrays and the plurality of sensors are adapted to provide signals to the microprocessor wherein the microprocessor is adapted to determine the conductivity of the fluid flowing between the pair of sensing arrays.

19. (Currently Amended) ~~The sensing element as in claim 1~~claim 18, wherein one of the plurality of sensors is disposed within one of the pair of sensing arrays.

20. (New) The sensing element as in claim 10, wherein one of the plurality of sensors is disposed within one of the pair of sensing arrays.